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No. 5 }

HEADQUARTERS  
DEPARTMENT OF THE ARMY  
WASHINGTON, D. C., 16 January, 1970

## RADIO SET CONTROL AN/GSA-7

TM 11-5135-15, 7 May 1958 is changed as follows:

### Note

The parenthetical reference to previous changes (*example*: page 1 of C 3) indicates that pertinent information was published in that change.

*Page 3* (page 1 of C 3). Delete paragraph 1.1 and substitute:

### 1.1 Indexes of Publications

*a. DA Pam 310-4.* Refer to the latest issue of DA Pam 310-4 to determine whether there are any new editions, changes, or additional publications pertaining to the equipment.

*b. DA Pam 310-7.* Refer to the latest issue of DA Pam 310-7 to determine whether there are any modification work orders (MWO's) pertaining to the equipment.

*Page 3* (page 2 of C 3). Delete paragraph 2 and substitute:

### 2. Forms and Records

*a. Reports of Maintenance and Unsatisfactory Equipment.* Use equipment forms and records in

accordance with instructions in TM 38-750.

*b. Report of Packaging and Handling Deficiencies.* Fill out and forward DD Forms 6 (Report of Packaging and Handling Deficiencies) as prescribed in AR 700-58 (Army), NAVSANDA Publications 378 (Navy), and AFR 71-4 (Air Force).

*c. Discrepancy in Shipment Report (DISREP) SF 361.* Fill out and forward Discrepancy in Shipment Report (DISREP) (SF 361) as prescribed in AR 55-38 (Army), NAVSUP Pub 459 (Navy), AFM 75-34 (Air Force), and MCO P46-10.19 (Marine Corps).

*d. Reporting of Equipment Manual Improvements.* Reporting of errors, omissions, and recommendations for improving this publication by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to Publications) and forwarded direct to Commanding General, U.S. Army Electronics Command, ATTN: AMSEL-ME-NMP-AD, Fort Monmouth, N.J. 07703.

*Page 40.* Add chapter 5.1 after chapter 5.

## CHAPTER 5.1

### DEPOT OVERHAUL STANDARDS

#### 41.1 Applicability of Depot Overhaul Standards

The tests outlined in this chapter are designed to measure the performance capability of a repaired radio set control. Radio set controls that are to be returned to stock should meet the standards given in these tests.

#### 41.2 Applicable References

*a. Repair Standards.* Applicable procedures of the depots performing this test and the general

standards for repaired electronic equipment given in TB SIG 355-1, TB SIG 355-2, and TB SIG 355-3, form a part of the requirements for testing this equipment.

*b. Technical Publication.* This manual is the only technical publication applicable to the equipment (refer to DA Pam 310-4 for changes in force):

*c. Modification Work Orders.* Perform all modification work orders applicable to this equipment before making the tests specified. DA Pam 310-7 lists all applicable MWO's.



### 41.3. Additional Equipment Required

In addition to the test equipment in the maintenance allocation chart (MAC), the following equipment is required:

Item	Federal Stock Number	Quantity
Telephone Set TA-312/PT.....	5805-543-0012	1
Handset H-33B/PT.....	5965-163-9947	1
Multimeter, TS-352*/U.....	6625-242-5023	1
Oscilloscope OS-8A/U.....	6625-643-1740	1
Audio Oscillator TS-421/U.....	6625-669-0228	1
Stopwatch.....	6645-719-8950	1
Frequency Counter AN/USM-207..	6625-911-6368	1
Power Supply 0-30V DC Electro Model NF (or equivalent).	NSN	1
Resistor, noninductive 150 ohms $\pm 5\%$ 2W.	NSN	
Resistor, noninductive 2000 ohms $\pm 5\%$ 2W.	NSN	1
Resistor, noninductive 600 ohms $\pm 5\%$ 2W.	NSN	1
Capacitor, 20 MFD fixed Electrolytic 150 vdc.	NSN	1

### 41.4. General Test Requirements

When a repaired equipment is being tested, perform tests in sequence and comply with preparatory instructions.

a. *Scope of Tests.* The following tests will be performed to assure the acceptability of repaired radio set controls for return to stock:

- (1) Physical test and inspection.
- (2) Electrical tests.
- (3) Operational tests.

b. *Initial Conditions.*

- (1) Perform all tests at room temperature.
- (2) Properly ground all equipment before making power connections.

### 41.5 Physical Test and Inspection

The equipment must meet the mechanical and visual requirements specified in inspection standards TB SIG 355-1, -2, and -3.

### 41.6 Electrical Tests

a. *Output Level—1600 Cycles* (fig. 24.1)

- (1) Connect a 150-ohm resistor across pins C and E of RADIO receptacle J3 or J4 (fig. 7)
- (2) Connect the ME-30A/U and the AN/USM-207 across the 150-ohm resistor.

(3) Position the C. O. POWER switch to EXT. and the RADIO & MON switch (fig. 7) to T RADIO and MON.

(4) Position the OFF-AC-DC switch to AC and apply 110 VAC to pins C and A of POWER receptacle J2.

(5) With the TS-421/U connected to the LINE terminals, apply a 20 cps signal at a level of 20 volts plus or minus 2 volts.

(6) The ME-30A/U must indicate between 0.1 and 0.2 volt.

(7) The AN/USM-207 must indicate 1600 cycles plus or minus 20 cps. The 1600 cycle signal must be prolonged for at least 2 seconds after the TS-421/U is turned off.

(8) Position the OFF-AC-DC switch to OFF and disconnect the 110 VAC source from the AN/GSA-7.

(9) Apply 26 volts dc plus or minus 2.0 volts to terminals D (+) and B (-) of POWER receptacle J2 and position the OFF-AC-DC switch to DC.

(10) Repeat (5) through (8) above except in (8) disconnect the 26 VDC source instead of the 110 VAC source.

(11) Turn the POWER SELECT switch to 230 V. Apply 230 VAC, to terminals C and A of the AN/GSA-7 POWER receptacle J2 and position the OFF-AC-DC switch to AC.

#### CAUTION

Never apply 230 VAC source to the AN/GSA-7 with the POWER SELECT switch in the 115V position.

(12) Repeat (5) through (8) above except in (8) disconnect the 230 VAC source instead of the 110 VAC source.

(13) Disconnect the 150-ohm resistor and the test equipment from the AN/GSA-7.

(14) Turn the POWER SELECT switch to 115V and apply 115 VAC, 60 cps to terminals C and A of POWER receptacle J2 for the remaining tests.

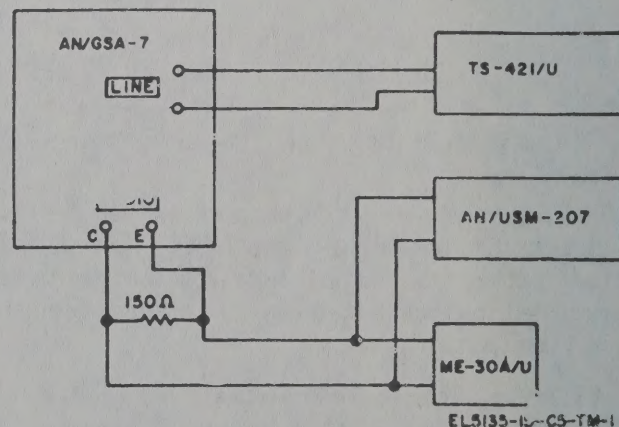


Figure 24.1 Output level test, 1600 cycles.



**b. Output Level—20 Cycles (fig. 24.2).**

(1) Connect a 20 MFD capacitor in series with a 2000-ohm resistor across the LINE terminals.

(2) Connect the ME-30A/U and the OS-8A/U vertical input across the 2000-ohm resistor.

(3) Position the OFF-AC-DC switch to AC.

(4) Connect the SG-15/PCM to terminals A and B of RADIO receptacle J3 or J4. Adjust the SG-15/PCM to a frequency of 1600 cycles plus or minus 30 cycles at an output level of -20 dbm (77.5 millivolts rms).

(5) With the TS-421/U and the AN/USM-207 connected to the horizontal input of the OS-8A/U, adjust the TS-421/U for a 1 to 1 ratio. Lissajous pattern on the OS-8A/U. The output frequency indicated on the AN/USM-207 must be 20 cycles plus or minus 2 cycles.

(6) The output voltage across the 2000-ohm resistor as indicated on the ME-30A/U must be greater than 40 volts rms.

(7) Disconnect the SG-15/PCM and hold the RADIO & MON switch in the RTEL position. The indication on the ME-30A/U must be greater than 40 volts rms.

(8) Position the OFF-AC-DC switch to OFF. Disconnect the capacitor, resistor and the test equipment from the AN/GSA-7.

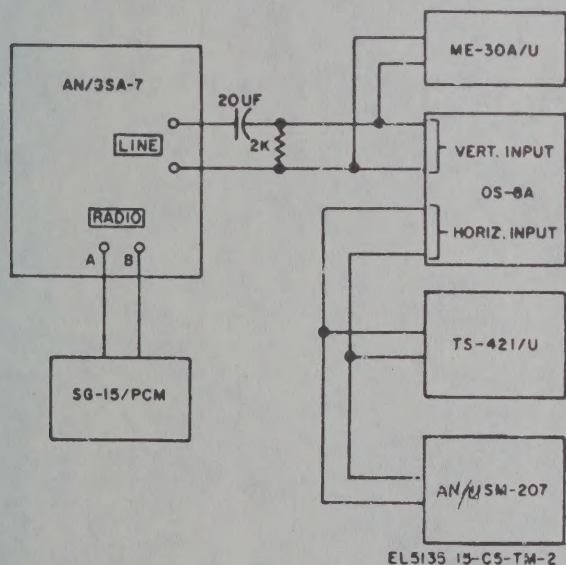


Figure 24.2 Output level test, 20 cycles.

**c. Loss From Line Terminals to RADIO Receptacles (Pins C and E).**

(1) Connect a 150-ohm resistor across pins C and E of RADIO receptacle J3 or J4.

(2) Connect the ME-30A/U across the 150-

ohm resistor.

(3) Connect the TS-421/U across the LINE terminals and position the OFF-AC-DC switch to AC.

(4) Adjust the TS-421/U to a frequency of 1000 cycles at a level of 0 db. Record the ME-30A/U indication for reference.

(5) The loss must not exceed 3 db when the TS-421/U is adjusted from 300 to 3500 cycles.

(6) Disconnect the 150-ohm resistor and the test equipment from the AN/GSA-7.

(7) Position the OFF-AC-DC switch to OFF.

**d. Loss From RADIO Receptacle (Pins A and B) LINE Terminals.**

(1) Connect a 600-ohm resistor and the ME-30A/U across the LINE terminals.

(2) Connect the SG-15/PCM across pins A and B of RADIO receptacle J3 or J4.

(3) Position the OFF-AC-DC switch to AC and the RADIO & MON-TEL switch to T.

(4) Adjust the SG-15/PCM to a frequency of 1000 cycles at a level of 0 db. Record the ME-30A/U indication for reference.

(5) The loss must not exceed 1.5 db when the SG-15/PCM is adjusted from 300 to 3500 cycles.

(6) Position the OFF-AC-DC switch to OFF. Disconnect the 600-ohm resistor and the test equipment from the AN/GSA-7.

**e. Warning Device Test.**

(1) Short the LINE terminals and connect the H-33B/PT to the PHONE receptacle.

(2) Position the RADIO & MON-TEL SWITCH to T RADIO & MON and the OFF-AC-DC switch to ON.

(3) Between 11 and 13 beeps per minute must be heard in the H-33B/PT.

(4) Position the OFF-AC-DC switch to OFF. Remove the short from the LINE terminals and disconnect the H-33B/PT.

**f. Carrier Operated Relay Test.**

(1) Connect a jumper between the CARR. OP terminal and the GND terminal.

(2) Position the switches as follows:

C.O. POWER to INT.

RADIO & MON-TEL to

OFF-AC-DC to AC.

(3) The resistance across the LINE terminals, as measured by the TS-352(\*)/U, must be 70 ohms plus or minus 20 ohms.

(4) Position the C. O. POWER switch to EXT. and remove the jumper between the CARR. OP. and the GND terminals.



(5) Connect a 16 VDC plus or minus 1 VDC source to CARR. OP. terminal (-) and AUX terminal (+).

(6) The resistance across the LINE terminals, as measured by the TS-352(\*)/U must be 70 ohms plus or minus 20 ohms.

(7) Disconnect the 16 VDC source from the AN/GSA-7 and position the OFF-AC-DC switch to OFF.

#### 41.7 Operation Tests

a. *External Ringing Test Within Radio Set Control AN/GSA-7.*

(1) Connect Telephone TA-312/PT to the LINE terminals and position the OFF-AC-DC switch to AC.

(2) Hold the RADIO & MON-TEL SWITCH in the R TEL position for several seconds and then release it.

(3) The RADIO & MON-TEL switch will return to the T TEL position and the telephone will ring.

b. *Local Switchboard Communication Test Through Radio Set Control AN/GSA-7.*

(1) Connect the H-33B/PT to the PHONE receptacle.

(2) Insure that the RADIO & MON-TEL switch is positioned to T TEL.

(3) Voice communication between the H-33B/PT and the TA-312/PT must be clear and intelligible.

c. *Radio Communication Test Through Radio Set Control AN/GSA-7.*

(1) Position the RADIO & MON-TEL switch to RADIO & MON T.

(2) Voice communication between the H-33B/PT and the TA-312/PT must be clear and intelligible.

By Order of the Secretary of the Army:

Official:

KENNETH G. WICKHAM,  
Major General, United States Army,  
The Adjutant General.

W. C. WESTMORELAND,  
General, United States Army,  
Chief of Staff.

Distribution:

To be distributed in accordance with DA Form 12-51 (qty rqr Block #241), Operator requirements for AN/GSA-7 Radio Set Control.